

## What is claimed is:

[Claim 1] An apparatus usable with a subterranean well, comprising:  
a safety valve assembly is controllable to selectively isolate a formation of a well from the surface of the well; and  
a pressure sensor located in the safety valve assembly to measure a pressure near the safety valve assembly.

[Claim 2] The apparatus of claim 1, wherein the safety valve assembly comprises a flapper valve assembly.

[Claim 3] The apparatus of claim 1, wherein the safety valve assembly comprises a valve closure element, and the pressure sensor is located near the valve closure element.

[Claim 4] The apparatus of claim 3, wherein the pressure sensor is located within five feet of the valve closure element.

[Claim 5] The apparatus of claim 3, wherein the safety valve assembly comprises a housing that houses the valve closure element and the pressure sensor.

[Claim 6] The apparatus of claim 1, wherein the safety valve assembly is adapted to be deployed over 5,000 feet downhole.

[Claim 7] The apparatus of claim 1, wherein the safety valve assembly comprises:

a valve closure element adapted to be controlled by pressure in at least one hydraulic line extending to the surface of the well.

[Claim 8] The apparatus of claim 7, wherein the pressure sensor is adapted to measure pressure in at least one of said at least one hydraulic line.

[Claim 9] The apparatus of claim 1, wherein the pressure sensor is adapted to measure at least one of the following:

- a pressure in a tubing string and an annulus pressure.

[Claim 10] The apparatus of claim 1, further comprising:

- a circuit to communicate an indication of the measured pressure to the surface of the well.

[Claim 11] The apparatus of claim 1, wherein the pressure sensor is one of a plurality of pressure sensors in the safety valve.

[Claim 12] The apparatus of claim 11, wherein the plurality of pressure sensors measure at least an annulus pressure and a pressure in a control line extending from the surface of the well to the safety valve assembly.

[Claim 13] A safety valve assembly usable with a subterranean well, comprising:

- a housing;
- a flapper located in the housing to selectively isolate a formation of the well from the surface of the well; and
- a pressure sensor located in the housing to measure a pressure.

**[Claim 14]** The safety valve assembly of claim 13, wherein the housing is adapted to be detachable from a tubular string extending into the well.

**[Claim 15]** The safety valve assembly of claim 13, wherein the pressure sensor is located within five feet of the flapper.

**[Claim 16]** The safety valve assembly of claim 13, wherein the safety valve assembly is adapted to be deployed over 5,000 feet downhole.

**[Claim 17]** The safety valve assembly of claim 13, further comprising:  
a flow tube; and  
an actuator to control movement of the flow tube to move the flapper to selectively open the valve.

**[Claim 18]** The safety valve assembly of claim 17, wherein the actuator is adapted to move the flow tube in response to pressure in at least one hydraulic line.

**[Claim 19]** The safety valve assembly of claim 18, wherein the pressure sensor is adapted to measure pressure in at least one of said at least one hydraulic line.

**[Claim 20]** The safety valve assembly of claim 13, wherein the pressure sensor is adapted to measure at least one of the following:

a pressure in a tubing string and an annulus pressure.

**[Claim 21]** The safety valve assembly of claim 13, wherein the pressure sensor is one of a plurality of pressure sensors in the safety valve.

[Claim 22] The safety valve assembly of claim 21, wherein the plurality of pressure sensors measure at least an annulus pressure and a pressure in a control line extending from the surface of the well to the safety valve apparatus.

[Claim 23] A method usable with a subterranean well, comprising:

- running a safety valve assembly downhole; and
- running a pressure sensor downhole with the safety valve assembly to measure a pressure near the safety valve assembly.

[Claim 24] The method of claim 23, wherein the act of running the safety valve assembly comprises running a flapper valve assembly downhole.

[Claim 25] The method of claim 23, wherein further comprising locating the pressure sensor near a valve closure element of the safety valve assembly.

[Claim 26] The method of claim 23, further comprising:

- after the act of running the pressure sensor downhole, communicating with the pressure sensor from the surface of the well.

[Claim 27] The method of claim 23, further comprising:

- integrating the pressure sensor with the safety valve assembly so that the safety valve assembly is located within five feet of a valve closure element of the safety valve assembly.

[Claim 28] The method of claim 23, wherein the act of running the safety valve assembly downhole comprises running the safety valve assembly at least 5,000 feet downhole.

[Claim 29] The method of claim 23, further comprising:

using the pressure sensor to measure pressure in at least one hydraulic line used to control the safety valve assembly.

[Claim 30] The method of claim 23, further comprising:

using the pressure sensor to measure at least one of a pressure in a tubing string and an annulus pressure.

[Claim 31] The method of claim 23, wherein the pressure sensor is one of a plurality of pressure sensors located in the safety valve assembly.

[Claim 32] The method of claim 31, further comprising:

using the plurality of pressure sensors to measure at least an annulus pressure and a pressure in a control line extending from the surface of the well to the safety valve assembly.

[Claim 33] An apparatus usable with a subterranean well, comprising:

a safety valve assembly is controllable to selectively isolate a formation of a well from the surface of the well; and

a temperature sensor located in the safety valve assembly to measure a temperature near the safety valve assembly.

[Claim 34] The apparatus of claim 33, wherein the safety valve assembly comprises a flapper valve assembly.

[Claim 35] The apparatus of claim 33, wherein the safety valve assembly comprises a valve closure element, and the temperature sensor is located near the valve closure element.

**[Claim 36]** The apparatus of claim 35, wherein the temperature sensor is located within five feet of the valve closure element.

**[Claim 37]** The apparatus of claim 35, wherein the safety valve assembly comprises a housing that houses the valve closure element and the temperature sensor.

**[Claim 38]** The apparatus of claim 33, wherein the safety valve assembly is adapted to be deployed over 5,000 feet downhole.

**[Claim 39]** The apparatus of claim 33, wherein the safety valve assembly comprises:

a valve closure element adapted to be controlled by temperature in at least one hydraulic line extending to the surface of the well.

**[Claim 40]** The apparatus of claim 39, wherein the temperature sensor is adapted to measure temperature in at least one of said at least one hydraulic line.

**[Claim 41]** The apparatus of claim 33, wherein the temperature sensor is adapted to measure at least one of the following:

a temperature in a tubing string and an annulus temperature.

**[Claim 42]** The apparatus of claim 33, further comprising:

a circuit to communicate an indication of the measured temperature to the surface of the well.

**[Claim 43]** The apparatus of claim 33, wherein the temperature sensor is one of a plurality of temperature sensors in the safety valve assembly.

[Claim 44] The apparatus of claim 43, wherein the plurality of temperature sensors measure at least an annulus temperature and a temperature in a control line extending from the surface of the well to the safety valve assembly.

[Claim 45] A safety valve assembly usable with a subterranean well, comprising:

- a housing;

- a flapper located in the housing to selectively isolate a formation of the well from the surface of the well; and

- a temperature sensor located in the housing to measure a temperature.

[Claim 46] The safety valve assembly of claim 45, wherein the housing is adapted to be detachable from a tubular string extending into the well.

[Claim 47] The safety valve assembly of claim 45, wherein the temperature sensor is located within five feet of the flapper.

[Claim 48] The safety valve assembly of claim 45, wherein the safety valve assembly is adapted to be deployed over 5,000 feet downhole.

[Claim 49] The safety valve assembly of claim 45, further comprising:

- a flow tube; and

- an actuator to control movement of the flow tube to move the flapper to selectively open the valve.

**[Claim 50]** The safety valve assembly of claim 49, wherein the actuator is adapted to move the flow tube in response to temperature in at least one hydraulic line.

**[Claim 51]** The safety valve assembly of claim 50, wherein the temperature sensor is adapted to measure temperature in at least one of said at least one hydraulic line.

**[Claim 52]** The safety valve assembly of claim 45, wherein the temperature sensor is adapted to measure at least one of the following:

a temperature in a tubing string and an annulus temperature.

**[Claim 53]** The safety valve assembly of claim 45, wherein the temperature sensor is one of a plurality of temperature sensors in the safety valve.

**[Claim 54]** The safety valve assembly of claim 53, wherein the plurality of temperature sensors measure at least an annulus temperature and a temperature in a control line extending from the surface of the well to the safety valve apparatus.

**[Claim 55]** A method usable with a subterranean well, comprising:

running a safety valve assembly downhole; and

running a temperature sensor downhole with the safety valve assembly to measure a temperature near the safety valve assembly.

**[Claim 56]** The method of claim 55, wherein the act of running the safety valve assembly comprises running a flapper valve assembly downhole.



[Claim 57] The method of claim 55, wherein further comprising locating the temperature sensor near a valve closure element of the safety valve assembly.

[Claim 58] The method of claim 55, further comprising:

after the act of running the temperature sensor downhole,  
communicating with the temperature sensor from the surface of the well.

[Claim 59] The method of claim 55, further comprising:

integrating the temperature sensor with the safety valve assembly so that the safety valve assembly is located within five feet of a valve closure element of the safety valve assembly.

[Claim 60] The method of claim 55, wherein the act of running the safety valve assembly downhole comprises running the safety valve assembly at least 5,000 feet downhole.

[Claim 61] The method of claim 55, further comprising:

using the temperature sensor to measure temperature in at least one hydraulic line used to control the safety valve assembly.

[Claim 62] The method of claim 55, further comprising:

using the temperature sensor to measure at least one of a temperature in a tubing string and an annulus temperature.

[Claim 63] The method of claim 55, wherein the temperature sensor is one of a plurality of temperature sensors located in the safety valve assembly.

[Claim 64] The method of claim 63, further comprising:

using the plurality of temperature sensors to measure at least an annulus temperature and a temperature in a control line extending from the surface of the well to the safety valve assembly.